

a common species which makes small nests on the under-side of leaves. It has dark red thoraces and a black abdomen with a single yellow ring. That many of the smaller wasps prey on caterpillars is well known. The peculiarity in this case was that it attacked a leaf-miner and absolutely followed up its burrow under the epidermis.

H. N. Ridley.

On the Fertilization of *Grammatophyllum*.

On account of the fertilization of *Grammatophyllum speciosum* was published by myself in the Journal of the Linnean Society vol. xx p. 336, where it was shown that the black and red hornet *Vespa ciacta* was the usual agent in the transference of pollen from one flower to another. The orchid flowers in August and September and I note that this year in the Botanic Gardens Singapore none of these insects are about, but the wild bee *Apis dorsalis* is at work and is an equally good fertilizer. But the insects which are most abundant on and about the flowers are small hymenoptera too small to be able to touch the pollenmasses, and ants, and also the large carpenter bees. *Xylocopa aestuans* and *X. latipes*. These visit the flowers more abundantly than the Apis, going round to each newly opened flower and plunging into it to suck the honey from the base of the lip. These insects however do not remove the pollen, although there seems at first sight no reason for their not doing so. The reason for this is that the lip of the flower is moveable on its base, and though these carpenter bees, much thicker than the Vespa, and Apis would fill up the space between the lip and column were the lip immobile and so touch with their thoraces the pollen masses, their weight on the lip bends it down so that they do not quite touch it, and thus they back out of the flower without removing the pollen. In this case the mobility of the lip is really injurious to the flower, as it allows the carpenter bees to remove the honey without fertilizing the flower, and by so doing preventing an Apis or Vespa who might come later from visiting the honey-less flower. In the wild haunts of *Grammatophyllum* Xylocopas are as plentiful as Apis or Vespa and

would be as good fertilizers, and it would appear that were the lip immobile the Grammatophyllum would secure the use of all three insects and avoid the loss of flowers through the removal of the honey without fertilization. The carpenter bees are thus harmful to this orchid, as it is to other flowers. By persistently tearing open the base of the corolla tube of *Ipomea palmata* to get the honey instead of pushing into the corolla mouth it effectually prevents this plant from being fertilized.

A considerable number of flowers, especially of introduced plants, never set seed, for various often obscure reasons. In some cases however the failure is certainly due to the actions of insects who though taking pollen or honey fail to put the pollen on the stigma. An example is that of *Clerodendron macrosiphon* a native of Zanzibar. It is a shrub with long tubular white flowers with long projecting stamens. The flowers are evidently intended for fertilization by hawkmoths, but as it opens its flowers too early for them they are spoilt by the small *Trigona* bees who assiduously go round to each stamen and collect all the pollen, without touching the stigma, so that the plant has never so far as I have never seen here produced a single fruit.

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Errata in "Descriptions of New Species of *Iphiaulax* and *Chaolta* (*Braconidae*) from Sarawak Borneo.

(Volume 42).

- p. 26, 6th line from bottom for "and costa" read "and stigma"
 p. 27, 8th line from bottom after "length" add ♂
 p. 32, at commencement of 6th line from foot add "of radius"
 p. 33, 14th line from bottom. After "apex" add ♀.
 p. 36, 7th line from foot for "later" read "lateral"
 p. 37, 11th line from top for "*Veneus*" read "*oeneus*"
 p. 38, 16th line from foot after "crenulated" add "♀"
 p. 40, 14th line from foot add *Iphiaulax nitidiusculus* sp. n.